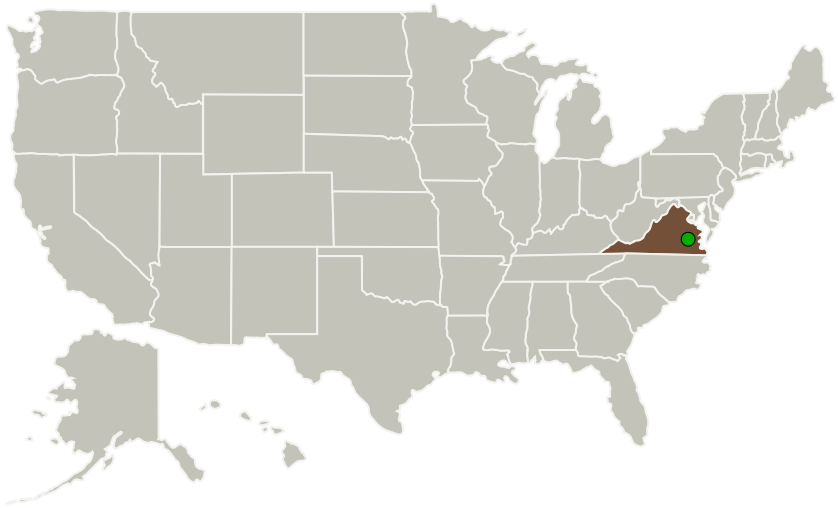
Software Tool for Significantly Increasing Airport Throughput, Phase I

Completed Technology Project (2010 - 2010)

Project Introduction

NASA's Next Generation Air Transportation System (NextGen) Airportal effort seeks to optimize aircraft surface movements through approaches that could double or triple airport and metroplex throughput. This goal can only be achieved through accurate modeling of airport/metroplex throughput, identifying the real causes of bottlenecks (not simply those that are politically palatable), proposing an innovative solution to eliminate these bottlenecks, and developing performance metrics that actually capture when the innovative solution is working and any corrective actions that may be required. The proposed innovation by Metron Aviation consists of the following components: (1) Accurate model of airport throughput taking into account aircraft and gate attributes (2) Virtual sequencing and scheduling program: Virtual queue based on aircraft type, scheduled departure time, and air carrier constraints; Aircraft virtual departure sequence prior to pushback based on the minimum time to drain a virtual queue by taking into account wake vortex constraints, (3) Increased Situational awareness and communications among ground/metering, local, and ramp controllers, and (4) Airport throughput performance metrics. Overall, this Metron Aviation innovation provides a software tool that will improve airport situational awareness, the reduction/elimination and management of potential surface flow bottlenecks that lead to a significant improvement in airport throughput.

Primary U.S. Work Locations and Key Partners



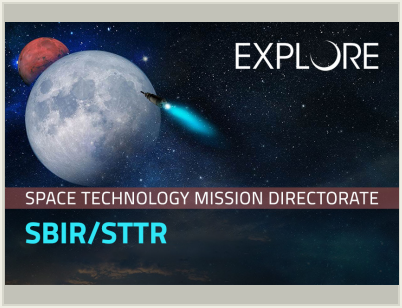


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Table of Contents

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
Metron Aviation, Inc.	Lead Organization	Industry	Dulles, Virginia
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

Primary U.S. Work Locations
Virginia

Project Transitions

January 2010: Project Start

July 2010: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139473)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Metron Aviation, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

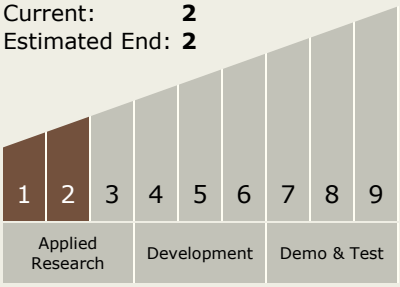
Carlos Torrez

Principal Investigator:

Bert J Hackney

Technology Maturity (TRL)

Start: **1**
Current: **2**
Estimated End: **2**



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Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
  - TX16.3 Traffic Management Concepts

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System